

## Contributors to this Issue

**Henry J. Bergmann**, B.Sc. (Electrical Engineering), 1965, Newark College of Engineering; Bell Laboratories, 1953—. Mr. Bergmann was initially involved with engineering of mobile radio systems. Since 1966, he has been engaged in microwave radio propagation work. Former member, Eta Kappa Nu.

**Stuart L. Blank**, B.S. (Ceramic Engineering), 1962, Alfred University, M.S. (Materials Science), 1964, New York State College of Ceramics; Ph.D. (Materials Science), 1967, University of California; Bell Laboratories, 1969—. Mr. Blank has been involved in investigating the growth of materials by liquid-phase epitaxy, in developing new materials for magnetic bubble device applications, and in transferring the epitaxial growth technology to Western Electric for production of magnetic bubble materials. He is also investigating crystal growth, phase transitions, and defects in oxide materials. At present, he is supervisor of the Epitaxial Materials and Processes group in the Electronic Materials and Processes Department. Member, American Ceramic Society, National Institute of Ceramic Engineers, American Association for Crystal Growth.

**James L. Blue**, A.B., 1961, Occidental College; Ph.D., 1966, California Institute of Technology; Bell Laboratories, 1966-1979. Mr. Blue has done research in noise theory for avalanche diodes and in modeling of semiconductor devices, and was involved in the development of computer aids for testing of integrated circuits. At Bell Laboratories, he was a member of the Computing Mathematics Research Department, where he was involved in mathematical modeling, research in numerical methods, and the development of numerical software. Mr. Blue is now with the Center for Applied Mathematics, National Bureau of Standards, Washington, D.C.

**P. I. Bonyhard**, B.Sc. (Physics), 1960, University of Leeds (England); Ph.D. (Numerical Automation), 1963, University of London (England); Bell Laboratories, 1965—. Mr. Bonyhard has worked on magnetic devices for digital systems, in particular plated wire, and, subsequently, bubbles. He has made contributions to the evolution of magnetic bubble memory technology in the areas of device design, chip organization and device-to-subsystem interfacing. He is currently working on the design of bubble mass memories utilizing patterned ion-implanted circuits.

**Y. S. Chen**, B.S.E.E., 1957, National Taiwan University; M.S.E.E., 1960, Georgia Institute of Technology; Ph.D., 1965, Stanford University; Raytheon Co., 1960-1963; Bell Laboratories, 1965—. At Bell Laboratories, Mr. Chen has worked in the areas of the optical properties of compound semiconductors, the electroluminescence of thin film semiconductors, and the plasma display devices. Since 1972, he has been engaged in the area of LSI and VLSI design work, in particular, on devices customly designed for telecommunication applications. At present, he is head of the Integrated Circuit Design department. Member, IEEE, Sigma Xi, Pi Mu Epsilon.

**L. Ralph Dawson**, B.S. (E.E.), Cal. Tech., 1962, M.S. (E.E.), 1965, Ph.D. (E.E.), 1968, University of Southern California; Bell Laboratories, 1969-1976, Sandia Laboratories, 1976—. While at Bell Laboratories, Mr. Dawson worked on the crystal growth, materials, and device characterization of compound semiconductor devices such as Gunn diodes, Impatts, LEDs, and lasers. In his current assignment at Sandia, he is working on long wavelength detectors and high temperature GaP devices. Member, Electrochemical Society, American Association for Crystal Growth.

**Donald L. Duttweiler**, B.E.E., 1966, Rensselaer Polytechnic Institute; M.S. (electrical engineering), 1967, Ph.D. (electrical engineering), 1970, Stanford University; Bell Laboratories, 1970—. Mr. Duttweiler currently supervises a group interested in digital signal processing and VLSI design. Member, Eta Kappa Nu, Tau Beta Pi, and Sigma Xi.

**William A. Johnson**, B.S. (Science Engineering), 1964, M.S. (Materials Science), 1968, Ph.D. (Materials Science), 1969, Northwestern University; Bell Laboratories, 1969—. Mr. Johnson has been involved

with developing the processing technology required to fabricate various magnetic bubble device overlay structures and in transferring the technology to Western Electric for manufacture. Specific areas of interest include ion beam milling, sputter and e-beam deposition, plasma deposition and etching, and ion implantation processes. He has also investigated vapor phase epitaxial processes for the growth of GaAs and doped GaAs films. At present, he is a member of the Device Technology Group in the Electronic Materials and Processes Department. Member, Electrochemical Society, American Vacuum Society.

**Vassilis G. Keramidas**, Ph.D. (Solid State Science), 1973, Materials Research Laboratory, Pennsylvania State University; Bell Laboratories, 1973—. Mr. Keramidas has worked on III-V LEDs for displays and optoelectronics, and on ohmic contacts to III-V compound semiconductors. He is currently involved in the crystal growth and characterization of  $\text{Ga}_{1-x}\text{Al}_x\text{As}$  and  $\text{Ga}_x\text{In}_{1-x}\text{As}_y\text{P}_{1-y}$  LEDs for lightwave communications. Member, Electrochemical Society, American Association for the Advancement of Science, American Association for Crystal Growth.

**Sing-Hsiung Lin**, B.S.E.E., 1963, National Taiwan University; M.S.E.E., 1966, and Ph.D., 1969, University of California, Berkeley; Bell Laboratories, 1969—. Mr. Lin is supervisor of the Digital Network Engineering Group. He developed and constructed the 11-GHz radio path engineering charts for 200 major U.S. locations which have been used widely by the Bell System operating companies and AT&T Long Lines in the engineering of new radio routes. He has also been engaged in research on digital and analog transmissions in twisted wire pair cables. Member, IEEE, Sigma Xi.

**T. J. Nelson**, B.S. (Electrical Engineering), 1961, Iowa State University; M.E.E., 1963, New York University; Bell Laboratories, 1961-1963; Ph.D. (Physics), 1967, Iowa State University, AEC Postdoctoral Fellow, 1967-1969, Iowa State University and Lawrence Radiation Laboratory, Berkeley, California; Bell Laboratories, 1969—. During his first stay at Bell Laboratories, Mr. Nelson worked on ultrasonic delay lines and digital light deflection. In his doctoral and postdoctoral work, he specialized in mathematical physics, especially relativistic wave equations. He is coauthor of a graduate text on electric and magnetic fields. Upon his return to Bell Laboratories, Mr. Nelson studied mode locking in lasers and then became involved with magnetic bubble device development. His interests in bubble technology have included

bubble nucleation, single level devices, optimized chevron detectors, and bubble devices based on ion-implanted propagation patterns. Member, Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, American Physical Society.

**Montel V. Pursley**, B.S.E.E., 1960, M.S.E.E., 1967, Newark College of Engineering; Bell Laboratories, 1953—. Mr. Pursley is currently involved in processing and analysis of line-of-sight microwave radio propagation data. His earlier Bell Laboratories experience included work on single-sideband long-haul radio systems, phased array radars, and oxide coated cathodes. Member, Tau Beta Pi.

**Bernard J. Roman**, B.S. (Physics), 1962, Carnegie-Mellon University; Ph.D. (Physics), Northwestern University; Bell Laboratories, 1969—. At Bell Laboratories, Mr. Roman has been responsible for the development of many processing techniques related to magnetic bubble device fabrication and for the successful transfer of these techniques into manufacture at Western Electric. His current interests include the investigation of various high-density, fine-line lithography approaches to magnetic bubble fabrication.

**George P. Vella-Coleiro**, B.Sc. (Science), 1961, Royal University of Malta; M.A. (Physics), 1963, D.Phil. (Physics), 1967, Oxford University; Bell Laboratories, 1967—. At Bell Laboratories, Mr. Vella-Coleiro has been investigating the fundamental properties of magnetic bubble materials. Rhodes Scholar, 1961-64; member, American Physical Society, IEEE.

**Raymond Wolfe**, B.A. (Mathematics and Physics), 1949, University of Toronto; M.A. (Theoretical Physics), 1950, University of Toronto; Ph.D. (Physics), 1955, University of Bristol, England; Kodak Research Labs, 1950-1952; General Electric Co. Research Labs, 1954-1957; Bell Laboratories, 1957—. Mr. Wolfe has been involved in studies of solid-state materials and devices. His early work was with semimetals and compound semiconductors for thermoelectric energy conversion. Since the birth of magnetic bubbles, he has supervised a group which is concerned with properties of magnetic oxide crystals such as garnets and with modification of their properties by ion implantation. This work has led to new materials for high-density, high-speed bubbler devices, and improved methods of bubble propagation. Fellow, American Physical Society; Editor, *Applied Solid State Science*.

**Christie R. Zipfel**, A.B. (Physics), 1963, Vassar College; M.S., 1965, and Ph.D., 1969 (Physics), University of Michigan; Bell Laboratories, 1974—. Mrs. Zipfel first came to Bell Laboratories as a Post-Doctoral Associate in the Solid State and Low Temperature Physics Research Department, working with C. C. Grimes on electrons on the surface of liquid helium. Since 1976, she has been doing reliability studies of AlGaAs LEDs in the Optoelectronic Device and Display Department.

